

Appln No. 10/627,725  
Amdt date September 13, 2010  
Reply to Office action of July 13, 2010

### **REMARKS/ARGUMENTS**

Claims 11-14, 17-20, 22-24, 38, 39 and 41 remain in the present application, of which claims 11, 38, 39 and 41 are independent. Claims 11, 38, 39 and 41 are amended herein for clarity. No new matter has been added. Applicant respectfully requests reconsideration and allowance of claims 11-14, 17-20, 22-24, 38, 39 and 41.

The July 13, 2010 Office action objected to claim 11 for awkward language. Claim 11 has been amended to include the initial phrase "thereby" as suggested. Applicant therefore requests that the objection to claim 11 be withdrawn.

### **Rejection of Claims 11-14, 17-20, 24 and 39 under 35 U.S.C. § 103(a)**

Claims 11-14, 17-20, 24 and 39 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kweon et al. (U.S. Patent 6,183,911, "Kweon") in view of Gao et al. (U.S. Patent Pub. No. 2002/0127175, "Gao") in view of JP 11-097027. Applicant traverses this rejection.

Independent claim 11 now recites, in relevant portion, "drying the coated lithiated compound at a temperature between 60°C and 100°C to form a surface treatment layer on the coated lithiated compound without heat-treating the dried coated lithiated compound, thereby preparing the positive active material, wherein the surface treatment layer includes a coating element-included hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof." Independent claim 39 now recites, in relevant portion, "drying the core at a temperature between 60°C and 100°C to form a surface treatment layer on the core without heat-treating the core, thereby preparing the positive active material, wherein the surface treatment layer includes a coating element-included hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof."

Kweon appears to disclose a "vanadium pentoxide solution-coated powder [that] is then heat-treated at temperatures ranged from 100 to 1000°C. . . . When the heat-treating temperature is lower than 100°C., the vanadium pentoxide solution coated on the powder is not crystallized

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so that is prohibits free movement of lithium ions in the active material." (Kweon col. 2 lines 57-58).

The Office action appears to argue that Kweon's disclosure provides for "the limitations of drying at 60-100 C and 'without heat treating.'" (Office action page 2). However, an "Applicant can rebut a presumption of obviousness based on a claimed invention that falls within a prior art range by showing '(1) [t]hat the prior art taught away from the claimed invention...or (2) that there are new and unexpected results relative to the prior art.'" (MPEP §2144.05(III), quoting *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1322 (Fed. Cir. 2004)). Here, Kweon appears to actually teach away from drying the coated lithiated compound at a temperature between 60°C and 100°C, as claimed in claim 11, by stating that heat-treating at temperatures lower than 100°C prohibits free movement of lithium ions in the active material. One having ordinary skill in the art would understand that free movement of lithium ions in the active material is critical to the charging and discharging of the battery. Both Gao and JP 11-097027 fail to remedy the deficiencies of Kweon, so there is no apparent reason why a person having ordinary skill in the art would have combined the cited references to arrive at the claimed embodiment of claims 11 and 39. Therefore, Applicant requests that the rejection of claims 11 and 39 be withdrawn and that these claims be allowed for at least this reason.

Furthermore, by drying the coated lithiated compound at a temperature between 60°C and 100°C, as claimed in claim 11, any hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof is formed. (Paragraph [0080]). Heat-treating at temperatures above 100°C forms a metal oxide, "which causes the internal resistance to increase and the discharge potential and power density to deteriorate." (Paragraph [0079]). This demonstrates that drying at temperatures between 60°C and 100°C provides new and unexpected results relative to conventional understanding or teaching of the prior art. As such, Kweon appears to teach away from drying the coated lithiated compound at a temperature between 60°C and 100°C and there are new and unexpected results by drying the coated lithiated compound at a temperature between 60°C and 100°C. Both Gao and JP 11-097027 fail to remedy the deficiencies of Kweon, so there is no apparent reason why a person having ordinary skill in the art would have

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combined the cited references to arrive at the claimed embodiment of claims 11 and 39. Therefore, Applicant requests that the rejection of claims 11 and 39 be withdrawn and that these claims be allowed for at least this reason.

The Office action states that "Kweon et al. further do not expressly teach that the coating material is a hydroxide, oxyhydroxide, oxycarbonate, or hydroxycarbonate," and that "JP 11-097027 teaches a nonaqueous secondary battery having a positive electrode with a sheathing layer [comprising] a hydroxide of an alkali metal." (Office action page 3). Without conceding that JP 11-097027 does in fact disclose a sheathing layer comprising a hydroxide, Applicant submits that, according to MPEP §2143.01(V), "[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." As stated above, Kweon discloses that heat-treating above 100°C is essential for crystallizing the coating as to not prohibit free movement of lithium ions in the active material. Also as stated above, heat-treating over 100°C forms a metal oxide. Thus, even if JP 11-097027 discloses a sheathing layer comprising a hydroxide, the combination with Kweon in heating above 100°C would convert any hydroxide to an oxide. To not heat above 100°C would render Kweon unsatisfactory for its intended purpose. Thus, there is no motivation to make the proposed modification. Gao fails to remedy the deficiencies of Kweon and JP 11-097027, so there is no apparent reason why a person having ordinary skill in the art would have combined the cited references to arrive at the claimed embodiment of claims 11 and 39. Therefore, Applicant requests that the rejection of claims 11 and 39 be withdrawn and that these claims be allowed for at least this reason.

Because claims 12-14, 17-20 and 24 depend, directly or indirectly, from claim 11, they each incorporate all the terms and limitations of claim 11 in addition to other limitations, which together further patentably distinguish these claims over the art of record when considered as a whole. Therefore, Applicant respectfully requests that the rejection of claims 12-14, 17-20 and 24 be withdrawn and that these claims be allowed.

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**Rejection of Claims 22, 23 and 38 under 35 U.S.C. § 103(a)**

Claims 22, 23 and 38 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kweon in view of Gao in view of JP 11-097027 and in further view of Maegawa et al. (U.S. Patent No. 6,383,235, "Maegawa").

Independent claim 38 now recites, in relevant portion, "drying the coated core at a temperature between 60°C and 100°C to form the surface treatment layer on the core without heat-treating the core, thereby preparing the positive active material, wherein the surface treatment layer includes a coating element-included hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof."

As stated above in reference to claims 11 and 39, Kweon, even in view of Gao and JP 11-097027, fails to disclose, teach or suggest drying the core at a temperature between 60°C and 100°C, as claimed in claim 38. Maegawa appears to disclose a process for "preparing cathode materials having a homogeneous composition." (Maegawa Abstract). As such, Maegawa fails to disclose coating a lithiated compound, as claimed in claim 38, and therefore fails to remedy the deficiencies of Kweon, Gao and JP 11-097027. Also, since there is no apparent reason why a person having ordinary skill in the art would have combined the cited references to arrive at the claimed embodiment of claim 38, Applicant requests that the rejections of claim 38 also be withdrawn for reasons as stated above in reference to claims 11 and 39 and that this claim be allowed.

Because claims 22 and 23 depend from claim 11, they each incorporate all the terms and limitations of claim 11 in addition to other limitations, which together further patentably distinguish these claims over the art of record when considered as a whole. Therefore, Applicant respectfully requests that the rejection of claims 22 and 23 be withdrawn and that these claims be allowed.

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**Rejection of Claim 41 under 35 U.S.C. § 103(a)**

Claim 41 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kweon in view of Gao in view of JP 11-097027 and in further view of Shindo et al. (U.S. Patent No. 6,045,947, "Shindo").

Independent claim 41 now recites, in relevant part, "drying the coated lithiated compound at a temperature between 60°C and 100°C to form a surface treatment layer on the coated lithiated compound without heat-treating the dried coated lithiated compound, thereby preparing the positive active material, wherein the surface treatment layer includes a coating element-included hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof."


As stated above in reference to claims 11 and 39, Kweon, even in view of Gao and JP 11-097027, fails to disclose, teach or suggest drying the core at a temperature between 60°C and 100°C, as claimed in claim 41. Shindo fails to disclose, teach or suggest a coated lithiated compound at all and therefore fails to remedy the deficiencies of Kweon, Gao and JP 11-097027. Also, since there is no apparent reason why a person having ordinary skill in the art would have combined the cited references to arrive at the claimed embodiment of claim 41, Applicant requests that the rejection of claims 41 be withdrawn for reasons as stated above in reference to claims 11 and 34 and that this claims be allowed.

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**Concluding Remarks**

In view of the foregoing amendments and remarks, Applicants earnestly solicit a timely issuance of a Notice of Allowance with claims 11-14, 17-20, 22-24, 38, 39 and 41. If there are any remaining issues that can be addressed over the telephone, the Examiner is cordially invited to call Applicants' attorney at the number listed below.

Respectfully submitted,  
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